

THE UNIVERSITY OF KANSAS SCIENCE BULLETIN

Vol. XXX, pt. I]

MAY 15, 1944

[No. 10

Two New Mammals from the Middle Pliocene of Seward County, Kansas

CLAUDE W. HIBBARD,

Museum of Vertebrate Paleontology, University of Kansas

ABSTRACT: *Osteoborus progressus* sp. nov. and *Pliomastodon adamsi* sp. nov. collected from middle Pliocene deposits along the Cimarron river in Seward county, Kansas, are described.

INTRODUCTION

IN June, 1943, while working with Doctor Thad McLaughlin of the United States Geological Survey, in Seward county, Kansas, we located a new middle Pliocene bone deposit along the Cimarron river. Fragments of vertebrates are common in these beds, but time did not permit any collecting, with the exception of picking up material exposed on the surface. In the small collection made at that time are the remains of two new Pliocene mammals. Invertebrates were also found associated with the vertebrates. There is a possibility that a new "High Plains" fauna can be secured at the locality in the future.

SYSTEMATIC DESCRIPTIONS

Osteoborus progressus sp. nov.

Plate X; figs. 1-4

Holotype. No. 6791, Kansas University Museum of Vertebrate Paleontology. Fragmentary lower jaws, the right half bearing $P_3 - M_3$; the left bearing $P_4 - M_2$.

Horizon and type locality. Ogallala formation, middle Pliocene, Seward county, Locality No. 6, Kansas.

Diagnosis. A large dog nearly as large as *Osteoborus validus* (Matthew and Cook) with a large P_4 approaching the size and

shape of that tooth in *Boroghagus*. The tooth joins M_1 with a square cut contact. The posterior cusp is absent on P_4 and the cingula are greatly reduced. M_1 with reduced metaconid.

Description of holotype. Lower jaws badly crushed at symphysis. Incisors and canines missing with the exception of a broken canine found in the matrix beside the lower jaws. The left jaw is less distorted and contains P_4-M_2 with the alveoli of the other teeth missing. The jaw is deflected outward beneath P_4 and the teeth are set in a slightly curved series. P_4 , M_1 , and M_2 are well worn. P_3-M_3 are present in the right jaw. The posterior part of the canine alveolus is present, although there is no evidence of P_1 or P_2 , probably due to the crushed condition of the jaw. P_3 is set slightly transverse in the jaw. No accessory cusps are present on the tooth. It is unworn and crowded toward M_1 due to the fact that the crown of P_4 had been broken off in life and only the roots remain. M_1 has a reduced metaconid in comparison with the M_1 of *Osteoborus cynoides* (Martin). M_2 worn and rectangular in outline. M_3 much smaller than M_2 and shows but slight wear.

Measurements (in millimeters) of holotype of *Osteoborus progressus*, KUMVP No. 6791 and the holotype of *Osteoborus cynoides* (Martin) KUMVP No. 3468.

	Osteoborus progressus	Osteoborus cynoides
P_3 , anteroposterior diameter	9.5	7.8
P_3 , greatest transverse diameter	6.5	5.0
P_1 , anteroposterior diameter	17.5	14.85
P_4 , greatest transverse diameter	12.4	10.5
M_1 , anteroposterior diameter	27.8	25.5
M_1 , greatest transverse diameter	11.9	11.7
M_1 , transverse diameter across heel.....	10.7	9.5
M_2 , anteroposterior diameter	12.0	12.3
M_2 , transverse diameter	8.5	8.6
M_3 , anteroposterior diameter	6.9
M_3 , greatest transverse diameter	5.6
Depth of ramus between P_2 and P_3	24.4
Depth of ramus beneath P_4	39.5	21.3
Depth of ramus beneath M_1	39.1	23.8

Discussion. *Osteoborus progressus* has a much heavier jaw than *O. cynoides*. The development of P_4 separates it from the other known forms of *Osteoborus* in that it is heavily developed, possesses no accessory cusps and the posterior cingula are poorly developed; also P_4 has a square contact with M_1 , a character found in *Boroghagus*. The presence of the metaconid on M_1 retains the form within the genus *Osteoborus*.

Pliomastodon adamsi sp. nov.

Plate XI

Holotype. No. 6788, Kansas University Museum of Vertebrate Paleontology. Maxillaries containing right and left M^2 — M^3 .

Horizon and type locality. Ogallala formation, middle Pliocene, Seward county, Locality No. 6, Kansas.

Diagnosis. Largest of the North American *Pliomastodon* known from upper dentition. Upper tusks rounded with no evidence of enamel bands. The external cingulum between the first and the second crests of M^3 forms a well developed tubercle.

Description of holotype. The specimen was badly weathered and eroded. The upper molars are in place in the maxillaries and intact but the amount of warping is not known. The anterior crests of M^2 are separated by a distance of 95.0 mm. The fourth crests of M^3 are separated by a distance of 60.0 mm. M^2 is greatly worn and only the outline of the crests remain. M^3 consists of four well developed crests and a small fifth crest. The first two crests of M^3 are well worn and there is no evidence of a trefoil pattern. The inner cusp of the third crest possesses a poorly developed trefoil. The presence of tubercles between the crests of M^3 are few. The largest developed tubercle is formed from the external cingulum between the first and the second crests. A very small external tubercle is present between the second and the third crests. An internal tubercle is present between the third and the fourth crests and it is the size of that tubercle in *Mammot*.

Four feet of a shattered tusk was associated with the maxillaries. It was round in cross section and there was no evidence of enamel on the surface. The greatest diameter of the tusk was four and one-half inches.

Measurements (in millimeters) of *Pliomastodon*

	<i>P. adamsi</i> Holotype	<i>P. nevadanus</i> Holotype	<i>P. vexillarius</i> Holotype
M^2 , anteroposterior diameter	100.6	112.0	107.0
M^2 , transverse diameter across third crest..	77.5	71.7	71.0
M^3 , anteroposterior diameter	179.0	155.6	158.0
M^3 , transverse diameter across first crest...	86.0	80.0
M^3 , transverse diameter across fourth crest,	73.0	71.0

The measurements of *Pliomastodon nevadanus* are after Stock (1936) and those of *P. vexillarius* are after Matthew (1930). *Pliomastodon matthewi* Osborn and *P. cosoensis* Schultz are smaller forms based upon the size of the upper teeth. *Pliomastodon sellardsi* Simpson from the lower Pliocene of Florida is known from the lower jaws and dentition.

The species is named for Messers Horace Adams, A. W. Adams, and Raymond A. Adams who own the XI Ranch and who have cooperated in every way possible to make our work a success in that region.

Discussion. Since the skull and lower jaws of *Pliomastodon adamsi* are unknown, its relationship to the other forms is not known. The genus *Pliomastodon* had a wide geographical range in North America during the Pliocene but it appears to have been less abundant than the other mastodonts whose remains are rather abundant.

The specimen was taken from a gray sandy silt approximately 20 feet above the jaws of *Osteoborus progressus*.

BIBLIOGRAPHY

- COOK, HAROLD J. 1922. A Pliocene Fauna from Yuma County, Colorado, with notes on the Closely Related Snake Creek Beds from Nebraska. Proc. Colo. Mus. Nat. Hist. 4, No. 2, pp. 3-30, pls. 14.
- MARTIN, H. T. 1928. Two New Carnivores from the Pliocene of Kansas. Jour. Mammalogy, 9, No. 3, pp. 233-236, pls. 2.
- MATTHEW, W. D. 1924. Third Contribution to the Snake Creek Fauna, Bul. Amer. Mus. Nat. Hist. 50, Art. 2, pp. 59-210, figs. 63.
- 1930. A Pliocene Mastodon Skull from California, *Pliomastodon verillarius* n. sp. Univ. Calif. Publ. Bul. Dept. Geol. Sci. 19, No. 16, pp. 335-348, pls. 41-44, figs. 2.
- MATTHEW, W. D., and COOK, HAROLD J. 1909. A Pliocene Fauna from Western Nebraska. Bul. Amer. Mus. Nat. Hist. 26, Art. 27, pp. 361-414, figs. 27.
- OSBORN, HENRY FAIRFIELD. 1921. First Appearance of the True Mastodon in America. Amer. Mus. Novitates, No. 10, pp. 1-6, figs. 2.
- 1936. Proboscidea. Vol. I, American Museum, New York, 802 pp., pls. 1-11, figs. 680.
- RICHEY, K. A. 1938. *Osteoborus diabloensis*, A New Dog from the Black Hawk Ranch Fauna, Mount Diablo, California. Univ. Calif. Publ. Bul. Dept. Geol. Sci. 24, No. 10, pp. 303-308, fig. 1.
- SCHULTZ, JOHN R. 1937. A Late Cenozoic Vertebrate Fauna from the Coso Mountains, Inyo County, California. Carnegie Inst. Washington, Pub. 487, pp. 75-109, pls. 1-8, figs. 5.
- STIRTON, R. A., and VANDERHOOF, V. L. 1933. *Osteoborus*, a New Genus of Dogs, and its Relations to *Borophagus* Cope. Univ. Calif. Pub. Bul. Dept. Geol. Sci. 23, No. 4, pp. 175-182, figs. 3.
- STOCK, CHESTER. 1928. Canid and Proboscidean Remains from the Ricardo Deposits, Mohave Desert, California. Carnegie Inst. Washington, Pub. 393, No. 5, pp. 41-47, pls. 4.
- 1936. A *Pliomastodon* Skull from the Thousand Creek Beds, Northwestern Nevada. Carnegie Inst. Washington, Pub. 473, Pt. III, pp. 37-39, pl. 1.
- VANDERHOOF, V. L. 1931. *Borophagus littoralis* from the Marine Tertiary of California. Univ. Calif. Pub. Bul. Dept. Geol. Sci., 21, No. 2, pp. 15-24, pls. 3.
- VANDERHOOF, V. L., and GREGORY, J. T. 1940. A Review of the Genus *Aelurodon*. Univ. Calif. Publ. Bul. Dept. Geol. Sci., 25, No. 3, pp. 143-164, figs. 8.

PLATE X

Osteoborus progressus sp. nov.

FIG. 1. Holotype, No. 6791, Kansas University Museum of Vertebrate Paleontology; lingual view of left ramus, P₄—M₂, anteroposterior diameter 58.9 mm.

FIG. 2. Holotype, No. 6791, occlusal view of left ramus, P₄—M₂.

FIG. 3. Holotype, No. 6791, lingual view of right ramus, P₃—M₃.

FIG. 4. Holotype, No. 6791, occlusal view of right ramus, P₃—M₃.

PLATE X



1



2



3



4

PLATE XI

Pliomastodon adamsi sp. nov.

Holotype, No. 6788, Kansas University Museum of Vertebrate Paleontology; oclusal view, RM² and RM³. Reduced. Anteroposterior diameter 272 mm.

PLATE XI



